Permit Fact Sheet

General Information

Permit Number:	WI-0065366-02-0
Permittee Name:	Village of Little Chute
Address:	108 West Main St
City/State/Zip:	Little Chute WI 54140
Discharge Location:	Storm sewers discharging to the Fox River in Little Chute
Receiving Water:	Fox River in Outagamie County
StreamFlow ($Q_{7,10}$):	930 cfs
Stream Classification:	Warm water sport fish community, non-public water supply

Facility Description

The Village of Little Chute operates an ion-exchange water softening system at its Pump Houses #1 and #2. When the softener is regenerated the first action of the regeneration cycle is a backwash. The backwash wastewater does not contain salt – which is present in other portions of the regeneration cycle – and thus is suitable for discharge to surface water.

Both pump houses are equipped with air-pressure actuated valves which direct the backwash wastewater to a storm sewer, and the remaining wastewater from softener regeneration to a sanitary sewer. That flow direction system, which diverts backwash water to the storm sewer, has several fail-safe mechanisms incorporated into it, such that if any mechanisms fail, flow is sent to the sanitary sewer. There are three to six regeneration cycles per day. The backwash cycle lasts approximately 15 minutes and discharges at a rate of approximately 350 gallons per minute.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)**
001	9,490 gpd (1/1/19 – 12/31/19)	Pump House #1 backwash to storm sewer. (Brine waste is discharged to Heart of the Valley WWTF.)
002	7,511 gpd (1/1/19 – 12/31/19)	Pump House #2 backwash to storm sewer. (Brine waste is discharged to Heart of the Valley WWTF.)

1 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 001- Pump House #1 Backwash

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Softener Regeneration		cycles/day	Daily	Count	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		gpd	Daily	Calculated	
Suspended Solids, Total	Daily Max	40 mg/L	Weekly	3-Grab Comp	
Suspended Solids, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of suspended solids and report on the last day of the month on the DMR.
Suspended Solids, Total	Annual Total	437 lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of suspended solids discharged and report on the last day of the month on the DMR.
pH Field	Daily Max	9.0 su	Quarterly	Grab	
pH Field	Daily Min	6.0 su	Quarterly	Grab	
Phosphorus, Total		mg/L	Weekly	3-Grab Comp	
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of phosphorus and report on the last day of the month on the DMR.
Phosphorus, Total	Annual Total	53 lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of phosphorus discharged and report on the last day of the month on the DMR.
Chlorine, Total Residual	Daily Max	38 ug/L	Quarterly	Grab	Limit effective October 1, 2023
Chloride		mg/L	Quarterly	3-Grab Comp	
Hardness, Total as CaCO3		mg/L	Quarterly	3-Grab Comp	
Copper, Total Recoverable	Daily Max	7.1 ug/L	Quarterly	Grab	
Copper, Total Recoverable	Daily Max	0.0017 lbs/day	Quarterly	Grab	

Changes from Previous Permit:

- Addition of mass limits for total suspended solids and phosphorus
- Addition of total residual chlorine monitoring and limit
- Removal of chloride limits
- Addition of hardness monitoring
- Addition of copper monitoring and limits

Explanation of Limits and Monitoring Requirements

Water Quality Based Limits

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated July 23, 2020, used for this reissuance.

TMDL Approved - Waste load allocations specified in TMDLs are expressed as WQBELs (water quality-based effluent limits). The waste load allocated-derived WQBELs for phosphorus and total suspended solids are consistent with the assumptions and requirements of the approved Lower Fox River Basin (LFRB) TMDL.

This facility was not given a WLA in the LFRB TMDL because it started discharging after the TMDL was approved. In order to account for the phosphorus and TSS discharged, a portion of the available reserve capacity was assigned to this facility. More information on how the WLAs were assigned can be found in the WQBEL memo.

The approved TMDL expresses WLAs as lbs/year and lbs/day (maximum annual load divided by 365 days). As outlined in Section 4.6.7 of the Department's *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Program*, mass limits must be given in the permit that are consistent with the TMDL WLA. Methods for converting TMDL WLAs into permit limits for non-continuous discharges should be determined on a case-by-case basis and consistent with the assumptions in the TMDL. For controlled discharges and other discharges where there is no valid statistical basis for transforming annual WLAs into shorter term limits, limits should be expressed as total annual discharge. Using shorter term limits would have the effect of unduly limiting operational flexibility.

Categorical Limits

Phosphorus

Phosphorus requirements are based on the Phosphorus Rules that became effective 12/1/2010 as detailed in NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. The code categorically limits industrial dischargers of more than 60 pounds of phosphorus per month and municipal dischargers of more than 150 pounds of phosphorus per month to 1.0 mg/L unless an alternative limit is approved. NR 217 also specifies WQBELs (water quality based effluent limits) for discharges of phosphorus to surface waters of the state from publicly and privately owned wastewater facilities, noncontact cooling water discharges which contain phosphorus, concentrated animal feeding operations that discharge through alternative treatment facilities and a facility/site that is regulated under NR 216 where the standards in NR151 and 216 are not sufficient to meet phosphorus criteria. WQBELs for phosphorus are needed whenever the discharge contains phosphorus at concentrations or loadings that will cause or contribute to an exceedance of the water quality standards.

The LFRB TMDL establishes TP and TSS wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries to the Lower Fox River. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

Sample Point Number: 002- Pump House #2 Backwash

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Softener Regeneration		cycles/day	Daily	Count	
Flow Rate		gpd	Daily	Calculated	
Suspended Solids, Total	Daily Max	40 mg/L	Weekly	3-Grab Comp	
Suspended Solids, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of suspended solids and report on the last day of the month on the DMR.
Suspended Solids, Total	Annual Total	437 lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of suspended solids discharged and report on the last day of the month on the DMR.
pH Field	Daily Max	9.0 su	Quarterly	Grab	
pH Field	Daily Min	6.0 su	Quarterly	Grab	
Phosphorus, Total		mg/L	Weekly	3-Grab Comp	
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of phosphorus and report on the last day of the month on the DMR.
Phosphorus, Total	Annual Total	53 lbs/yr	Monthly	Calculated	Calculate the 12-month rolling sum of total monthly mass of phosphorus discharged and report on the last day of the month on the DMR.
Chlorine, Total Residual	Daily Max	38 ug/L	Quarterly	Grab	Limit effective October 1, 2023
Chloride		mg/L	Quarterly	3-Grab Comp	
Hardness, Total as CaCO3		mg/L	Quarterly	3-Grab Comp	
Copper, Total	Daily Max	6.8 ug/L	Quarterly	Grab	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Recoverable					
Copper, Total Recoverable	Daily Max	0.0014 lbs/day	Quarterly	Grab	

Changes from Previous Permit:

- Addition of mass limits for total suspended solids and phosphorus
- Addition of total residual chlorine monitoring and limit
- Removal of chloride limits
- Addition of hardness monitoring
- Addition of copper monitoring and limits

Explanation of Limits and Monitoring Requirements

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whenever the discharge contains phosphorus at concentrations or loadings that will cause or contribute to an exceedance of the water quality standards.

The LFRB TMDL establishes TP and TSS wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries to the Lower Fox River. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

2 Compliance Schedules

2.1 Total Residual Chlorine Limits Compliance

This compliance schedule requires the permittee to achieve compliance by the specified date.

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent chlorine with conclusions regarding compliance.	09/30/2021
Action Plan: Submit an action plan for complying with applicable chlorine limits.	03/31/2022
Initiate Actions: Initiate actions identified in the plan.	09/30/2022
Complete Actions: Complete actions necessary to achieve compliance with effluent chlorine limits.	09/30/2023

Explanation of Compliance Schedules

This is a standard schedule that allows the facility time to investigate options for meeting a new chlorine effluent limit.

Attachments:

Substantial Compliance Determination by Roy Van Gheem, Wastewater Engineer, dated December 11, 2019

WQBEL Memo: Water Quality-Based Effluent Limitations for the Little Chute Waterworks WPDES Permit No. WI-0065366-02-0, by Michael A. Polkinghorn, EIT, Water Resources Engineer, dated July 23, 2020

Proposed Expiration Date:

September 30, 2025

Justification Of Any Waivers From Permit Application Requirements

Given the unique nature of the discharge from this facility, the permit application requirement for phosphorus monitoring was reduced to 5 samples instead of 12.

Prepared By:

Sarah Donoughe, Wastewater Specialist

Date: July 30, 2020